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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,733	11/17/2003	Victor L. Klimov	S-102,311	4376

35068 7590 12/14/2005

UNIVERSITY OF CALIFORNIA
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EXAMINER

KUGEL, TIMOTHY J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,733	KLIMOV ET AL.	
	Examiner	Art Unit	
	Timothy J. Kugel	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 12-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 and 17-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-27 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-27 are pending as amended on 30 November 2005. Claims 13-16 are withdrawn from consideration.

Election/Restrictions

2. Applicant's election without traverse of the invention of group I, claims 1-12 and 17-27, in the reply filed on 30 November 2005 is acknowledged.

3. Claims 13-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Specification

4. The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

Claim Interpretation

5. Claims 1-12 use the transitional term 'including', which has been construed as being synonymous with 'comprising', which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps.

Claim Rejections - 35 USC § 102 and/or 35 USC § 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-9, 17-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application Publication 2002/011080 (Barney hereinafter).

Barney teaches colloidal nanocrystals, a solid composite including nanocrystals and a process of making a solid composite including nanocrystals comprising mixing nanocrystals—including ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, HgS, HgSe, HgTe, AlN, AlP, AlAs, AlSb, GaN, GaP, GaAs, GaSb, InN, InP, InAs, InSb, TiN, TiP, TiAs, TiSb, PbS, PbSe and PbTe nanocrystals (¶¶0011 and 0022)—with a amphiphilic material—including alkyl phosphines, alkyl phosphine oxides, alkyl phosphonic acids, or alkyl phosphinic acids such as tri-n-octyl phosphine and tri-n-octyl phosphine oxide (¶0022) or poly(lauryl methacrylate) (¶0015)—and a sol-gel precursor—such as silicon alkoxide, titanium alkoxide or zirconium alkoxide (¶0031)—and forming a solid matrix containing the nanocrystals (¶0031) at ratios of 5:1 to 10:1 of the nanocrystal solution to the binder

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(¶0042) such that the resulting composition has upwards of 80% high emission quantum efficiency (¶0018).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 11, 12, 26 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barney.

Barney teaches colloidal nanocrystals, a solid composite including nanocrystals and a process of making a solid composite including nanocrystals comprising mixing nanocrystals—including ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, HgS, HgSe, HgTe, AlN, AlP, AlAs, AlSb, GaN, GaP, GaAs, GaSb, InN, InP, InAs, InSb, TiN, TiP, TiAs, TiSb, PbS, PbSe and PbTe nanocrystals—with a amphiphilic material—including alkyl phosphines, alkyl phosphine oxides, alkyl phosphonic acids, or alkyl phosphinic acids such as tri-n-octyl phosphine and tri-n-octyl phosphine oxide or poly(lauryl methacrylate)—and a sol-gel precursor—such as silicon alkoxide, titanium alkoxide or zirconium alkoxide—and forming a solid matrix containing the nanocrystals at ratios of 5:1 to 10:1 of the nanocrystal solution to the binder such that the resulting composition has upwards of 80% high emission quantum efficiency as detailed above.

Since Barney teaches the same composition as claimed, one of ordinary skill in the art at the time the invention was made would have expected that the transparency

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of the sol-gel host and the uniformity of the distribution of the nanocrystals of the Barney composition would inherently be the same as claimed.

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977).

10. Claims 10 and 24 rejected under 35 U.S.C. § 103(a) as being unpatentable over Barney in view of US Patent Application Publication 2002/0155507 (Bruchez hereinafter).

Barney teaches colloidal nanocrystals, a solid composite including nanocrystals and a process of making a solid composite including nanocrystals comprising mixing nanocrystals—including ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, HgS, HgSe, HgTe, AlN, AlP, AlAs, AlSb, GaN, GaP, GaAs, GaSb, InN, InP, InAs, InSb, TiN, TiP, TiAs, TiSb, PbS, PbSe and PbTe nanocrystals—with a amphiphilic material—including alkyl phosphines, alkyl phosphine oxides, alkyl phosphonic acids, or alkyl phosphinic acids such as tri-n-octyl phosphine and tri-n-octyl phosphine oxide or poly(lauryl methacrylate)—and a sol-gel precursor—such as silicon alkoxide, titanium alkoxide or zirconium alkoxide—and forming a solid matrix containing the nanocrystals such that the resulting composition has upwards of 80% high emission quantum efficiency as detailed above.

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Barney does not disclose expressly the use of octylamine-modified poly(acrylic acid) as an amphiphilic polymer.

Bruchez discloses semi-conductor nanocrystals produced with partially grafted poly(acrylic acid) in which octylamines were attached to about 40% of the carboxyl groups of the poly(acrylic acid) (§0287).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the octylamine-modified poly(acrylic acid) polymer of Bruchez in the compositions and processes of Barney. The motivation to do so would have been to produce a water-soluble semi-conductor nanocrystal composition (Bruchez §0287)

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,106,609

08-2000

Yang et al.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

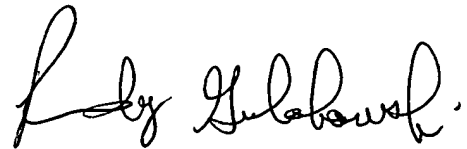
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

TJK

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A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with the first name "Randy" and last name "Gulakowski" clearly distinguishable.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700